

## **MC3820/MC5720 Series Monochrome Cameras**

### **Installation/ Operation Manual**

**C1934M (8/99)**



## INTRODUCTION

These instructions cover Pelco's MC3820 and MC5720 Series cameras. Read all of these instructions. Use them to install your camera and have them available for its lifetime. Refer to Table A for the camera models and their features. All cameras in the range are fitted with a direct drive (DD) lens connector, have adjustable back focus and accept C and CS lenses.

TABLE A

Option	MC3820-3	MC3820-2X	MC5720-3	MC5720-2X
Monochrome	●	●	●	●
Resolution (TVL)	380	380	570	570
Sensitivity (lux @ f1.2)	0.1	0.1	0.1	0.1
CCD Sensor size	1/3"	1/3"	1/3"	1/3"
Sony HyperHAD CCD	●	●	●	●
Adjustable Gamma (0.45 and 1.0)	●	●	●	●
Automatic Gain Control (AGC)	●	●	●	●
Backlight Compensation (BLC)	●	●	●	●
BLC on/off	●	●	●	●
Electronic Iris (EI)	●	●	●	●
EI on/off	●	●	●	●
Auto Iris connection	●	●	●	●
Line lock with phase adjust (AC only)	●	●	●	●
<b>Dimensions</b>				
4.82 (L) x 2.57 (W) x 2.34 (H) inches (12.25 x 6.55 x 5.95 cm)	●	●	●	●
<b>Supply</b>				
11 - 40 VDC or 14 - 30 VAC, 50/60Hz		●		●
230 VAC + 10% -15% 50Hz	●		●	

**⚠ WARNING**

- Ensure installation and servicing is carried out by qualified personnel.
- Isolate from the supply circuit before any servicing.
- Installation method and materials must be capable of supporting four times the total weight of the unit.
- Power supply cords must be connected as defined in national electrical codes of practice for Class 1 earth protected equipment.
- Low voltage cameras must be connected as defined in national electrical codes of practice for Class 2 protection of double or reinforced insulation.
- Safety critical components must only be replaced with recommended parts.



The maximum load on the rear (auto-iris) connector must not exceed 50 mA.  
The maximum load on the direct drive connector must not exceed 25 mA.

**REGULATORY NOTICES**

Federal Communications Commission Part 15 - Digital devices

This Device complies with part 15 of the FCC rules. Operation is subject to the following two conditions:

- (1) this device may not cause harmful interference, and
- (2) this device must accept any interference that may cause undesired operation.

**CERTIFICATIONS**

This product meets the requirements of the following standards:

**Electromagnetic Compatibility**

EN55022: 1995 limits and methods of measurement of radio disturbance characteristics of information technology

EN50082-1: 1992 Generic immunity standard

**Comprising:**

IEC 1000-4-2: 1995 Electrostatic discharge

IEC 1000-4-3: 1995 Radiated electromagnetic fields

IEC 1000-4-6: Immunity to conducted disturbances, induced by radio-frequency fields

IEC 1000-4-4: 1995 Fast transient bursts

**Safety**

EN 60950: 1992 Safety of information technology equipment, including electrical business equipment

**DECLARATIONS**

The manufacturer declares that the equipment supplied with this manual is compliant with the EMC directive 89/336 EEC and the low voltage directive 73/23 EEC and CE marked accordingly.

## ⚠ CAUTION

In order to avoid damaging your camera, note the following points.

- 1) The camera has threaded mounting points on the top and bottom of the case. Only use a standard, photographic mounting bolt with a 1/4-20 UNC thread.
- 2) Before fitting the lens, make sure that its back will not touch the CCD sensor or associated components when fully installed.
- 3) Do not touch the image surface of the sensor. If the sensor is accidentally touched, only clean it using isopropanol.
- 4) Do not expose the sensor to direct sunlight as this may impair the performance of the camera.

## POWER SUPPLY

The MC3820 and MC5720 Series cameras are available in 230 VAC or 11-40 VDC/14-30 VAC low voltage types. **The voltage required to operate the camera is clearly marked on the rear panel of the camera. Power the low voltage cameras only from a class 2 isolated power supply.** The power consumption is less than 5 Watts.

### 230 VAC Power Supply

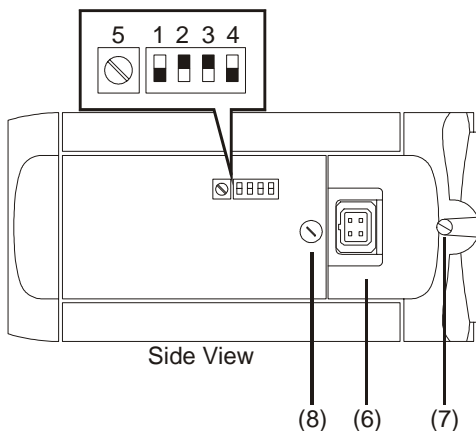
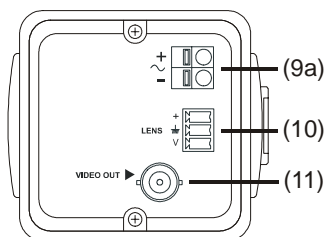
Cameras that are intended to operate directly from 230 VAC are fitted with a non-detachable power supply cord. The voltage of operation is clearly marked on the rear panel of the camera. Generally this is 230 VAC +10% /-15% at 50 Hz. Refer to the wiring instruction label attached to the supply cord and terminate the cord with the appropriate circuit with a 3A fuse. **CAMERAS MUST BE CONNECTED TO A PROTECTIVE EARTH GROUND.** Ensure that a secure means of isolation from the AC power is provided for the camera in accordance with the national wiring regulations of the country of installation.

### Auto-switching power supply

Cameras fitted with an automatic selecting power supply operate between 11-40 VDC and 14-30 VAC. Connections and polarity are indicated above the screw terminals on the rear panel. **The power supply must be a class 2 isolated type.**

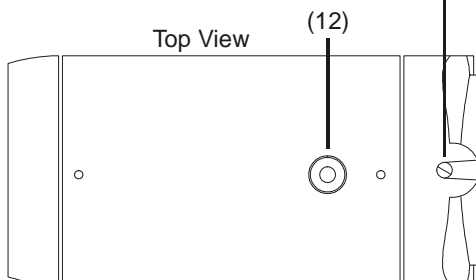
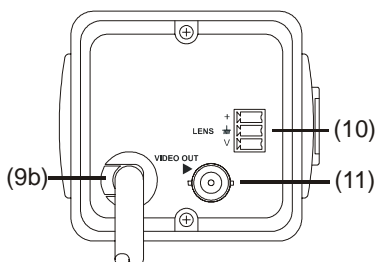
On the side of the camera is a hinged flap. The hinged flap covers various adjustment controls and function switches.

MC3820-2X and MC5720-2X



Side View

MC3820-3 and MC5720-3



Top View

Default switch positions shown (white represents switch position)

### (1) Synchronization Selection (LL/INT)

This switch is used to select the camera synchronization mode. When the camera is connected to an AC power supply, the Line-lock (LL) mode can be used. This locks the camera frame rate to the power supply frequency so that cameras in a system are triggered at the same point on the power supply AC cycle. Also see 5, Line Lock Phase Adjustment Potentiometer.

### (2) Backlight Compensation (BLC)

The BLC (Back Light Compensation) feature compensates for back-lit scenes by enhancing objects in the center of the scene which would previously have been in silhouette. Select **ON** or **OFF** using the BLC switch. Default is **OFF**. BLC will only function with a manual iris lens when the Electronic Iris facility is switched on. For direct drive and auto-iris lenses, BLC will still function even though the Electronic Iris is switched off.

### (3) Gamma

Two different gamma correction options are available. Select **Normal** (0.45) to provide increased visibility in dark areas of the scene, or **Linear** (1.0). The default setting is **Normal**.

#### (4) Electronic Iris (EI)

The Electronic Iris (EI) compensates for excessive light level by automatically adjusting the shutter speed. The electronic iris should be **ON** when using fixed or manual iris lenses. When using Auto-Iris (AI) lenses of either the video drive or DC drive types the EI must be **OFF**. Also see 8, Electronic Iris and DC Lens Level Adjustment Potentiometer.

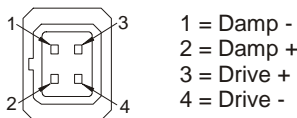
#### (5) Line Lock Phase Adjust Potentiometer

When the camera is in line-lock mode, it is possible to adjust the point on the power supply AC cycle at which the camera triggers. This feature is provided so that cameras that are connected to different AC power supply phases may still be synchronized.

The line lock phase adjustment potentiometer allows the line lock phase trigger point to be adjusted by  $\pm 120^\circ$ . Rotating the potentiometer clockwise advances the trigger point and turning it counterclockwise retards the trigger point. The factory default setting is the zero crossing point. If all cameras in a system are on the same AC power supply phase, no line lock phase adjustment should be made.

#### (6) Direct Drive/DC Drive Lens Connector

This 4-pin connector supplies the power and DC control signal for use with DC drive auto-iris lenses. If the lens does not have a DD plug installed, wire the lens to a suitable plug in accordance with the diagram below:



DD Lens Connector

#### (7) Back Focus Adjustment Screws

These two adjustment points, located on the camera body top and side, are used to adjust the back focal length or picture focus. The range of adjustment allows both C and CS mount lenses to be used without the need for a spacer ring. Refer to the section on Focus Adjustment.

#### (8) Electronic Iris and DC Lens Level Adjustment Potentiometer

If the camera is used with a direct drive (DD) lens, this potentiometer varies the DC reference voltage used to control the lens. The potentiometer has the effect of increasing or decreasing the lens aperture. This potentiometer should be set to obtain a 1V peak-to-peak video output.

If a camera is used with a manual iris or fixed iris lens, and the electronic iris is switched ON, this potentiometer controls the electronic iris level. The potentiometer is factory set to give a 1V peak-to-peak video output for a typical scene. The level should not be adjusted unless absolutely necessary.

#### (9a) Supply Voltage Terminals (MC3820-2X and MC5720-2X)

##### **⚠ CAUTION**

**Only connect the camera to a class 2 power supply.**

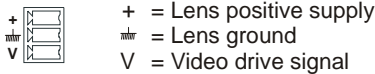
This terminal accepts 11-40 VDC or 14-30 VAC 50 Hz power source. The terminals are quick-release type. To connect a cable, press the appropriate release lever and insert the end of cable. Ensure that there is a sufficient length of bare wire to make contact with the connector. Also ensure that the cable insulation is not too thick, preventing the cable from being properly inserted.

**(9b) Supply Voltage Power Cord (MC3820-3 and MC5720-3)**

The non-detachable power supply cord must be connected to a power supply of 230 VAC +10% / -15% at 50 Hz. REFER TO THE WIRING INSTRUCTION LABEL ATTACHED TO THE SUPPLY CORD and terminate the cord with the appropriate circuit with a 3A fuse. **CAMERAS MUST BE CONNECTED TO A PROTECTIVE EARTH GROUND.** Ensure that a secure means of isolation from the AC power is provided for the camera in accordance with the national wiring regulations of the country of installation.

**(10) Video Iris Lens Connector**

This three-way connector provides the power and video drive signal for use with video drive auto-iris lenses. The terminal block that mates with this connector is provided in the packing kit. Connect the lens to the terminal block in accordance with the diagram below:



Auto-Iris Lens Connections

**(11) Video Output BNC Connector**

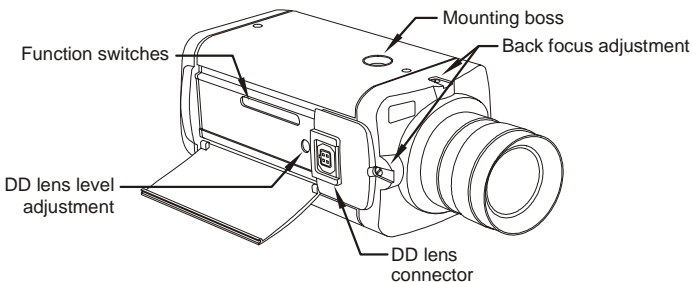
To obtain a 1.0V peak-to-peak composite video signal, connect a video coaxial cable terminated with a 75-ohm BNC connector to the BNC socket marked VIDEO OUT.

**(12) Mounting Boss**

1/4-20 UNC camera mounting boss.

**CAMERA MOUNTING**

Mounting points are provided on the top and bottom of the camera and are used to mount the camera on a bracket or tripod. Only use standard, photographic 1/4-20 UNC mounting bolts.



**LENS SELECTION**

Suitable lens types are C and CS mount in fixed iris, manual iris, auto-iris or direct drive versions. Sizes are shown below. Cameras are factory set for CS mount lenses. If using a C mount lens, rotate either of the back focus screws approximately 30 turns counterclockwise before installing the lens.

Lens size	MC3820-3	MC3820-2X	MC5720-3	MC5720-2X
1/3"	●	●	●	●
1/2"	●	●	●	●
2/3"	●	●	●	●
1"	●	●	●	●

**LENS SETUP PROCEDURES**

For manual or fixed iris lenses set the EI switch to **ON**.

**Auto-Iris Lenses**

Switch the EI **OFF**. Refer to the lens instructions and adjust the lens for the optimum picture (video output level of 1V peak-to-peak).

**Direct Drive Lenses**

Switch the EI **OFF**. Use an appropriate screwdriver to turn the lens level potentiometer (under the hinged flap) fully clockwise. Next, slowly adjust the potentiometer counterclockwise until the optimum picture is obtained (video output level of 1V peak-to-peak).

**FOCUS ADJUSTMENT**

The back focus adjustment screws are located on the top and side of the case at the front of the camera and should be adjusted using an appropriate screwdriver. Do not 'over turn' the back focus mechanism.

**Fixed Lenses**

Set the lens focus to infinity and view an image greater than 6.5 feet (2 m) away. Focus the image using the back focus screw. Set the lens focus as required.

**Manual Iris Lenses**

Open the iris fully and set the lens focus to infinity. View an image greater than 6.5 feet (2 m) away. Focus the image using the back focus screw. Set the lens focus and iris as required.

**Auto-Iris and Direct Drive Lenses**

Fully open the iris by covering the lens with a suitable neutral density (ND) filter. Set the lens focus to infinity. View an image greater than 6.5 feet (2 m) away. Focus the image using the back focus screw. Remove the ND filter and set the lens focus as required.



---

**FOCUS ADJUSTMENT**

---

**Zoom Lenses**

Set the lens focus to infinity and fully open the iris by covering the lens with a suitable neutral density (ND) filter. Zoom out to the widest field of vision and view a distant object. Adjust the back focus screw until the object is in focus. Next, zoom fully in and adjust the lens focus until the object is again focused. Repeat these steps until the full zoom range may be viewed with the minimum loss of focus.

---

**SYNCHRONIZATION**

---

Cameras that operate from AC power supplies are line-locked for a supply frequency of 50 Hz. If the supply frequency is unstable, then disable the line lock by setting the SYNC switch to **Internal**.

---

**WARRANTY AND RETURN INFORMATION**

---

Pelco will repair or replace, without charge, any camera proved defective in material or workmanship for a period of two years after the date of shipment.

Pelco will warrant all replacement parts and repairs for 90 days from the date of Pelco shipment. Repairs made necessary by reason of misuse, alteration, normal wear, or accident are not covered under this warranty.

Pelco assumes no risk and shall be subject to no liability for damages or loss resulting from the specific use or application made of the Products. Pelco's liability for any claim, whether based on breach of contract, negligence, infringement of any rights of any party or product liability, relating to the Products shall not exceed the price paid by the Dealer to Pelco for such Products. In no event will Pelco be liable for any special, incidental or consequential damages (including loss of use, loss of profit and claims of third parties) however caused, whether by the negligence of Pelco or otherwise.

The above warranty provides the Dealer with specific legal rights. The Dealer may also have additional rights, which are subject to variation from state to state.

If a warranty repair is required, the Dealer must contact Pelco at (800) 289-9100 or (559) 292-1981 to obtain a Repair Authorization number (RA), and provide the following information:

1. Model and serial number
2. Date of shipment, P.O. number, Sales Order number, or Pelco invoice number
3. Details of the defect or problem

If there is a dispute regarding the warranty of a product which does not fall under the warranty conditions stated above, please include a written explanation with the product when returned.

Method of return on warranty shipments shall be the same or equal to the method by which the item was received by Pelco.

In order to expedite parts returned to the factory for repair or credit, please call the factory at (800) 289-9100 or (559) 292-1981 to obtain an authorization number (CA number if returned for credit, and RA number if returned for repair). Goods returned should be clearly identified with the assigned CA/RA number and freight should be prepaid. All merchandise returned for credit may be subject to a 20% restocking and refurbishing charge.

Ship freight prepaid to:

- Pelco, 300 West Pontiac Way, Clovis, CA 93612-5699, or
- Pelco c/o American Overseas Airfreight, 320 Beach Road, Burlingame, CA 94101 (if shipped outside the United States)





#### REVISION HISTORY

Manual #	Date	Comments
C1934M	8/99	Original version
	8/99	AC supply voltage changed from 12-30 VAC to 14-30 VAC